



EFFECTIVENESS OF E-LEARNING IN ADULT EDUCATION

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ABSTRACT

Education via the Internet, network, or standalone computer. E-learning is essentially the network-enabled transfer of skills and knowledge. E-learning refers to using electronic applications and processes to learn. E-learning applications and processes include Web-based learning, computer-based learning, virtual classrooms and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM.

E-learning was first called "Internet-Based training" then "Web-Based Training" Today you will still find these terms being used, along with variations of e-learning such as e-learning, E-learning, and eLearning.

Key words: Computer-based learning, Internet, Intranet, Internet-Based Training, Web-Based Training.

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1. INTRODUCTION

The United Nations Scientific and Cultural Organization (UNESCO) differentiated between literates and illiterates in the year 1970 as follows:

‘An individual who possesses the ability to communicate using a written language can be regarded as a literate person; however, someone who does not possess this ability is considered illiterate’ (UNESCO, 2005).

The United Nations Population Commission (1948) defined ‘literacy’ as ‘the ability to read or write a simple message in a particular language’ (UNESCO, 1957). Gathered for educational discussions on the eradication of illiteracy organised by UNESCO in Tehran (1965), the World Conference of Ministers also defined literacy, stating that ‘rather than an end in itself, literacy should be regarded as a way of preparing everyone for a social, civic

and economic role that goes far beyond the limits of rudimentary literacy training consisting merely in teaching of reading and writing (UNESCO, 2010). Educating people to be literate could bring drastic changes in their lives. Illiteracy is ruining lives and is linked to an array of poor life outcomes, such as poverty, unemployment social exclusion, crime and long term illness. The World Literacy Foundation is challenging a mind-set amongst world leaders to treat illiteracy as a disease that we must eradicate. It has also determined that more than 796 million people throughout the world cannot read and write. (Cree, Kay, & Steward, 2012). Computerised learning represents a remarkable development in literacy education because an individual feels empowered by the ability to learn at anytime, anywhere. This convenience also facilitates self-paced learning. (Brindley, Walti, & Zawacki-Richter, 2008). Finding teachers with all required skills in this modern world can be challenging, although skills can certainly develop through experience. Learner-centred teaching methods should be employed to encourage creativity and active participation (Nompula, 2012). Computers being utilised for educational purposes have gained increasing prominence and are also cost effective.

2. RELATED LITERATURES

If we want to solve the problem of quickly eradicating illiteracy, proper utilisation of mass media such as radio, television and computers is essential (Muthumanikam, 2006). Some innovative features to be added include the use of multimedia to impart education, the focus on words rather than letters and harmonising visual and audio patterns to enable retention (Tata Consultancy Services, 2007).

Papadopoulou, Aristodemou, and Laouris (2008) have compared and discussed the use of e-learning in adult education in Belgium, Cyprus, Germany, Poland and Spain. Cross-country differences prompted the study. Many countries had different types of approaches and usage of ICT. Respondents from Germany (50%), Italy (45%), Spain (44%) and Cyprus (33%) opted for e-learning because it was easier in comparison to traditional learning. Most respondents felt that e-learning was user-friendly even though their specific responses varied.

Educators of adults recognise the computer's capacity as a means of information transfer. The computer's vast potential for storage, organisation and retrieval of information makes it even more attractive than television or radio (Gnanasekar, 2006). With the computer's increasing popularity, e-learning has become a popular approach that offers interactive teaching and learning. Learners not only learn in a visual or oral way but also react enthusiastically to what is offered to them (Bester & Brand, 2013).

Several research studies have focused on the development of effective e-learning modules. One such attempt is the research study conducted in Bangladesh by the Centre for Development through Open Learning, Publishing and Communication (CEDOLPC) Centre. The main goal was the eradication of poverty through functional adult literacy using ICT. For 12 months, 35 women and 20 men with ages ranging from 25 to 60 participated in the study. They were provided audio-video aides to attain functional literacy with various vocational skills to contribute additional income to families. The adult learners were able to read billboards, road symbols, posters and newspaper headings. This motivated other illiterates to become literate (Islam & Manzur, 2008). Another effort, 'Intercultural understanding e-learning application in education' was implemented in Finland and South Africa with the aim of developing e-learning content and educational applications to enhance intercultural understanding and awareness among learners (Meier, 2007).

3. RESEARCH DESIGN

Tata Consultancy Services (TCS) developed a Computer Based Functional Literacy (CBFL) programme in their Corporate Social Responsibility (CSR) activity. This E-learning programme is now praised for its capacity to teach or refresh any skill in a single mode. CBFL was conducted in 22 Indian languages and in Spanish, Arabic and South African Languages.

In August and September of 2002, three experts from TCS visited South Africa at the invitation of Zanele Mbeki, First Lady of South Africa. South Africa has 11 official languages, including Afrikaans, English, isiNdebele, isiXhosa, isiZulu, Sepedi, Sotho, Setswana, Siswati, Tshivenda and Xitsonga, as well as several dialects. Many of these dialects do not have their own script and use the Roman script. In Pretoria, the TCS team helped design, develop and initiate the first set of lessons in the Northern Sotho language, which was implemented in Lephalale, Northern Province. Educators from that country have now continued the programme (Tata Consultancy Services, 2004).

Focused group discussions and the random sampling technique were used in this study. Approximately 70 experts teaching in eight different languages at the literacy e-learning centres were selected as a sample to supply the relevant information for the study. A structured and pretested questionnaire was used to obtain information from all participants of the study, subsequent to which a general open discussion was conducted. The salient aim of this research is to ascertain the effectiveness of the e-learning functional literacy programme administered to illiterate adults. The study objectives are to analyse the content and patterns of e-learning modules, to determine the drawbacks in e-learning content and to identify and suggest new ideas for improving CBFL modules.

4. COMPUTER-BASED FUNCTIONAL LITERACY (CBFL)

CBFL works when it is installed to a system. It is auto played and is user-friendly. The learner can browse through any part of the screen and can choose lessons. Each lesson has similar sub-headings. Once the user browses through the lessons, he or she can proceed further by clicking on the right arrow. Similarly, the learner can return to the previous page by clicking on the left arrow. The user can scroll through the index and the all of the content as well. The user learns various lessons just with a mouse click and the cursor that scrolls anywhere on the screen, viewing images and animations by listening to the audio. Through this process, the user completes practice tests and works through numerous exercises with corrections and feedback. The learner catches the pace of learning while being taught, thus making this approach more effective.

The user would be able to learn to read in at least 3-4 days using the CBFL technique, which is comparatively much shorter than the classroom teaching methods, which require at least a week (Tata Consultancy Services, 2007). CBFL offers the learner an interesting experience that seems fun, beginning with a set of commonly used words that are reinforced by audio and scripts. Every word or a letter could be identified by the user with the repetition of the sound followed with the image. The user slowly gains confidence in this e-learning technique by simple exercises with computer assistance. An e-learning module developed by the State Resource Centre for Non-Formal and Adult Education (SRC), Tamil Nadu, in collaboration with Tata Consultancy Services (TCS) has been used in promoting adult literacy for the past 10 years.

The CBFL module also introduces its teaching through a set of lessons, exercises, multimedia word searches and other similar user-friendly interfaces. This CBFL technique has been developed for effective coaching, leading the user to frame sentences independently within 10 to 15 weeks of its use. The software is field tested, and training methodologies are

then improved based upon this experience. In 2005, the CBFL programme was particularly commended by management guru C.K. Prahalad from the University of Michigan (Nori & Lobo, 2005).

5. FOCUSED GROUP DISCUSSION

Focused group discussions (FGDs) provide a platform for the exchange of ideas, varied visions, attitudes, and interpretations of experts in this field. The content and the outcomes of these discussions are a vital source of first-hand information, which can then be used to devise various strategies and techniques to spread literacy. The 70 experts invited to be a part of FGDs all had experience in the use of computers in education.

The FGDs began with the experts introducing themselves, followed by a simple demonstration for participating teachers on the aims and objectives of the e-learning modules. Subsequently, general discussions with the participants were held, after which questions were solicited and answered. Discussion was cultivated throughout the session to make the e-learning process interactive and interesting.

The questionnaire was drafted based on a format designed to elicit exact responses from the teachers. It included an acceptable description of the content and sequence of the expected modules. The participants had to answer the questions by choosing one of the following responses: strongly agree (SA), agree (A), undecided (UD), disagree (DA), strongly disagree (SD). This helped us to achieve a conclusion by consensus and to understand the best content and structure required by the e-learning modules, which were defined by 39 characteristic parts.

Table 1 Characteristics that define the content of the e-learning modules

Textual Features	(In Percentage)				
	SA	A	UD	DA	SD
Size Of The letters	54.30%	41.42%	---	4.28%	----
Space between the letters and words	50%	45.72	4.28	----	----
Familiarity of the Words	34.29%	42.86%	2.86%	11.43%	2.86%
Familiarity of the sentences	34.29%	42.86%	2.86%	11.43%	2.86%
E-Learning Method is useful	71.43%	28.57%	---	---	---
Role of E-Learning in Learners' Day-To-Day Life	14.28%	11.43%	2.86%	50%	21.42%
Continuity	88.57%	11.43%	---	---	---
Self-Learning	50%	38.56%	4.29%	7.15%	---
Content Coverage	38.57%	42.85%	4.28%	---	---
Relation between Exercises and the Lessons	12.86%	27.15%	1.43%	34.28%	24.28%
Reading Exercises	92.85%	7.15%	---	---	---
Writing Exercises	---	---	--	21.42%	78.58%
Satisfaction of the Exercises	---	---	17.14%	60%	32.86%
E-Learning Teaching Method Is Simple And Clear	41.42%	55.72%	2.86%	---	---
Sequence Of The E-Content	48.57%	51.43%	---	---	---
Impact Of the E-Content	37.14%	48.57%	14.29%	---	---
Satisfaction with the E-Content	40%	54.29%	5.71%	---	---
Audio-Visual Features					
Pictures	---	---	---	38.57%	61.43%
Choice Of Colours	28.57%	41.42%	8.57%	12.86%	8.58%
Animation and Graphics	64.28%	35.72%	---	---	---
Time Gap Between Letters/Words	48.57%	45.71%	5.72%	---	---
Visual Layout	34.29%	61.43%	4.28%	---	---

Textual Features	(In Percentage)				
	SA	A	UD	DA	SD
Sufficient White Space	45.72%	54.28%	---	---	---
Page Structure	40%	54.28%	5.72%	---	---
Instructions	60%	38.57%	1.43%	---	---
Improvement in the Learners	92.86%	7.14%	---	---	---
Page Clarity	92.85%	7.15%	---	---	---
Information On The Page (Or) Distractions	57.14%	38.57%	4.29%	---	---
Navigation	74.28%	25.72%	---	---	---
Background Music	---	--	14.28%	45.72%	40%
Voice Over	90%	10%	---	---	---
Correct Task Performance	40%	60%	---	---	---
E-Content Helpful In Teaching	48.57%	51.43%	---	---	---
Achievement of the objective	60%	40%	---	---	---
Feedback Mechanism	---	---	20%	34.28%	45.72%
Additional Explanation/ Examples	35.71%	52.85%	11.44%	---	---
Functioning Of The Computer	48.57%	51.43%	---	---	---
Maintenance of The Computer	72.85%	27.15%	---	---	---
Improvements in the learners	45.71%	54.29%	---	---	---

6. RESULTS AND DISCUSSION

The first-hand information derived from the exchange and interchange of views from the experts was tabulated, and their supporting and opposing views were calculated for the enrichment of the study. The experts found that the functional literacy e-learning programme had no effective writing exercise. They suggested that, to enable the learners to improve their writing, proper exercises should be incorporated in the programme; only then would the learning process be complete. The e-learning module included only the same repeated model of reading exercises. Different models of reading exercises are necessary to develop the learners' abilities. In this functional literacy programme, exercises are given after every three lessons. These do not enrich the learning experience. The programme also lacks a mechanism to analyse the learners' abilities. Therefore, at the end of each lesson, proper exercises should be given to clearly understand the learners' abilities at that point. In addition, the e-learning module has no feedback mechanism. In the future, the e-learning module must incorporate feedback on the lessons to determine the learners' interest and other abilities.

Music has been given only a lighter role in the e-learning module. Hence, the musical component should be increased to draw the learners' complete attention to the e-learning experience. The voice-over using a female voice is very clear and easily understandable. The teaching/learning method of the e-learning module did not include songs and games, which would avoid boredom and monotony. The addition of songs and games would also create a sense of enthusiasm, encouraging learners to become more involved in the learning process. Therefore, in the future, the lessons should incorporate songs and games related to the content.

Words alone are provided in the text of the e-learning module. If pictures relevant to the words were added to the e-learning module, this would help learners easily absorb the words. Thus, such picture-word presentations are considered an important instructional method—that should be compulsorily introduced into the e-learning processes. Animation and graphics have not been used appropriately in the e-learning programme. If they were given more importance, this change would enable the learner to easily and quickly learn and would serve as a motivation.

The words and sentences included in the e-learning are not tailored to the learners. The words and sentences are too general. To create a more effective learning experience, content reflecting the day-to-day affairs and general health and hygiene notes should be inserted in the e-learning functional literacy programme. The words and sentences commonly used in houses, streets, public places and on billboards, content that the learners encounter each day, should be used in e-learning, so that the learners can employ the same information in their daily lives. Moreover, the e-learning module does not include information about the Government welfare plans to create socio-economic awareness among the learners. Proper socio-economic awareness and welfare schemes should be included in the lessons to make them more informative and applicable. In the e-learning module, each lesson is presented directly without any introduction. The inclusion of introductory materials for the lessons, if space permits, would generate involvement and interest. A general discussion component should also be included to develop learners' participation.

7. CONCLUSIONS AND RECOMMENDATIONS

A large percentage (98.57%) of the respondents asserted that the instructional pace was good. However, the evaluation process less effective because none of the 70 experts identified it as good. Thus, the researcher may reshape the evaluation schedule to improve the learning outcomes and avoid this negative feedback.

The size of letters, space between letters / words, structure of words, continuity of sequence and reading exercises are appropriate in the content-based text features as well as the audio-visual features. The voiceover, clear structure of the letter/sentences, animation and graphics, colours, availability of sufficient white space and navigation are proper in the existing pattern, as the experts confirmed. Hence, the same standard may be followed in Computer based Functional Literacy programmes to be prepared in future.

In Computer based Functional Literacy Programme, the letters are taught through the introduction of words; however, the words given for teaching have no direct relationship with the users' daily life. Using words that are employed in their daily life would improve the learners' awareness with ease and comfort. Reading and writing are essential for learning a language. The experts emphasised the need for writing exercises in Computer based Functional Literacy and felt that it must be given top priority.

The experts noted that the lessons included no pictures to motivate them, and all suggested including pictures in the lessons. They believe that pictures can motivate learners for better and easier learning.

Understanding how well learners are mastering lesson content is an essential component. For this purpose, evaluations are placed in between lessons. No feedback mechanism for the learners is available in the programme, and thus necessary and relevant evaluation tools should be framed and inserted following every 3 to 4 lessons. All experts deemed that the e-Learning module had good clarity. Because clarity enables users to identify the letters and words, it encourages them to write and read easily and become literate more rapidly. The expert team also approved of the learning method used in the module learning. Developing and enriching a good method of teaching through learning is essential.

Based on the responses and recommendations from experts obtained during FGDs, the e-learning modules can be designed. As described above, pictures, which have a vital role in adult education, can be the basis for awareness discussions (ADs) in which learners participate to develop their speaking abilities. The computers at the education centres need to be easily operable. As an example, the same key on a keyboard should be used to enter an exercise and then move on the subsequent exercises.

In addition to the existing reading exercises, writing exercises also need to be introduced. The reading and writing exercises need to be given equal importance and content ratio (50:50), and they should be structured so that their difficulty increases gradually with learner ability and confidence. Introduction of words that are more relevant to the learners, both professionally and personally, must be considered. Animation and graphics need to be introduced to attract and maintain learners' attention and to motivate them. Their use for recreational purposes should be avoided.

Because almost 50% of adult learners are in the 30–45 years age bracket, the use of rich and attractive colours and large font sizes is imperative. The embedded audio content for words and sentences in the modules need to be loud and clear and should be temporally well-spaced for content differentiation and absorption. Only then can the learners reproduce those words through speech. Hence, voiceover quality is essential. The general content for the Computer based Functional Literacy programme has been created. Thus, if a module with content based on occupations is prepared, it can be tailored to suit the educational needs of women and other people in varied occupations such as farming, fisheries, entrepreneurship, or industrial work.

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